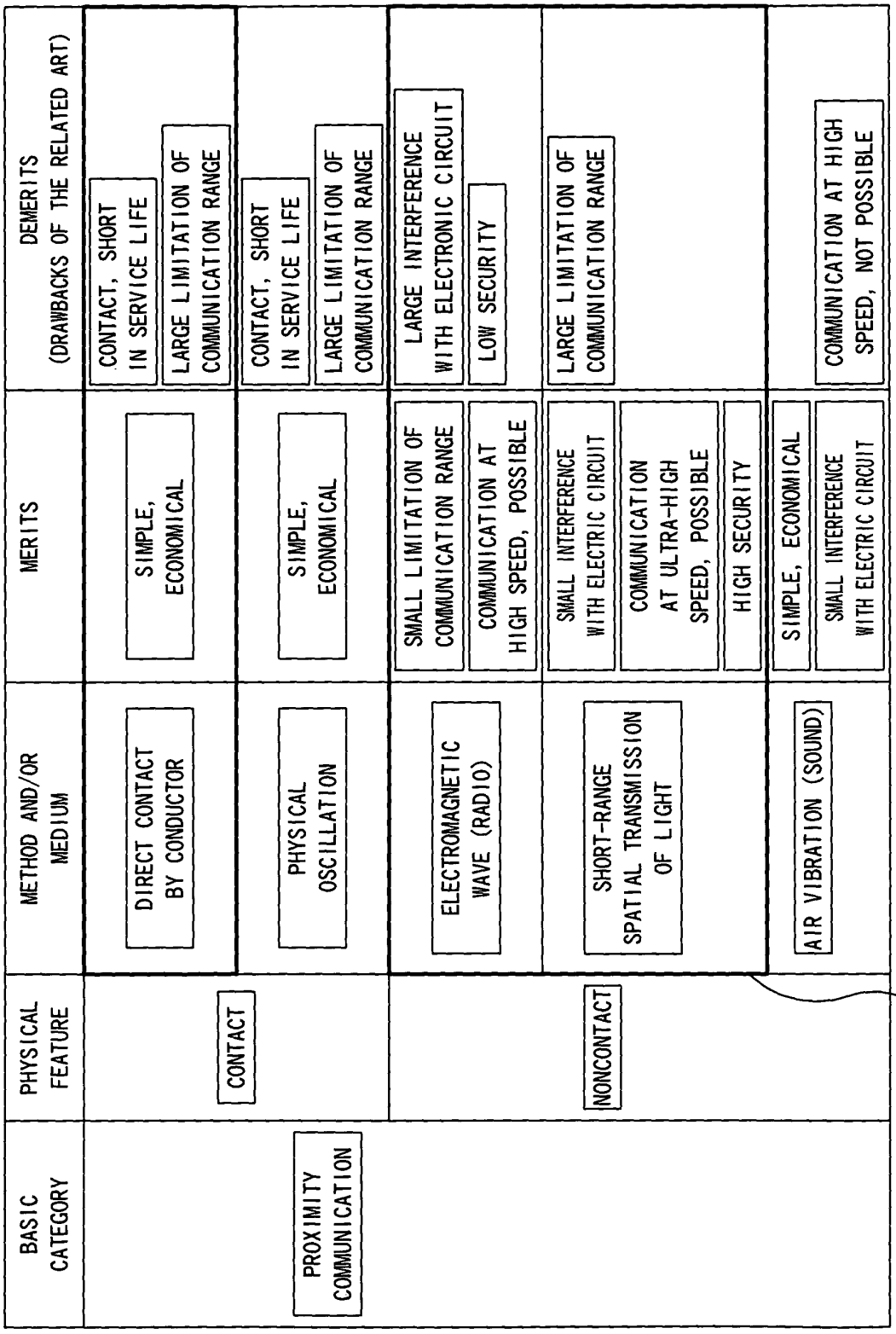

FIG. 1 (Prior Art)

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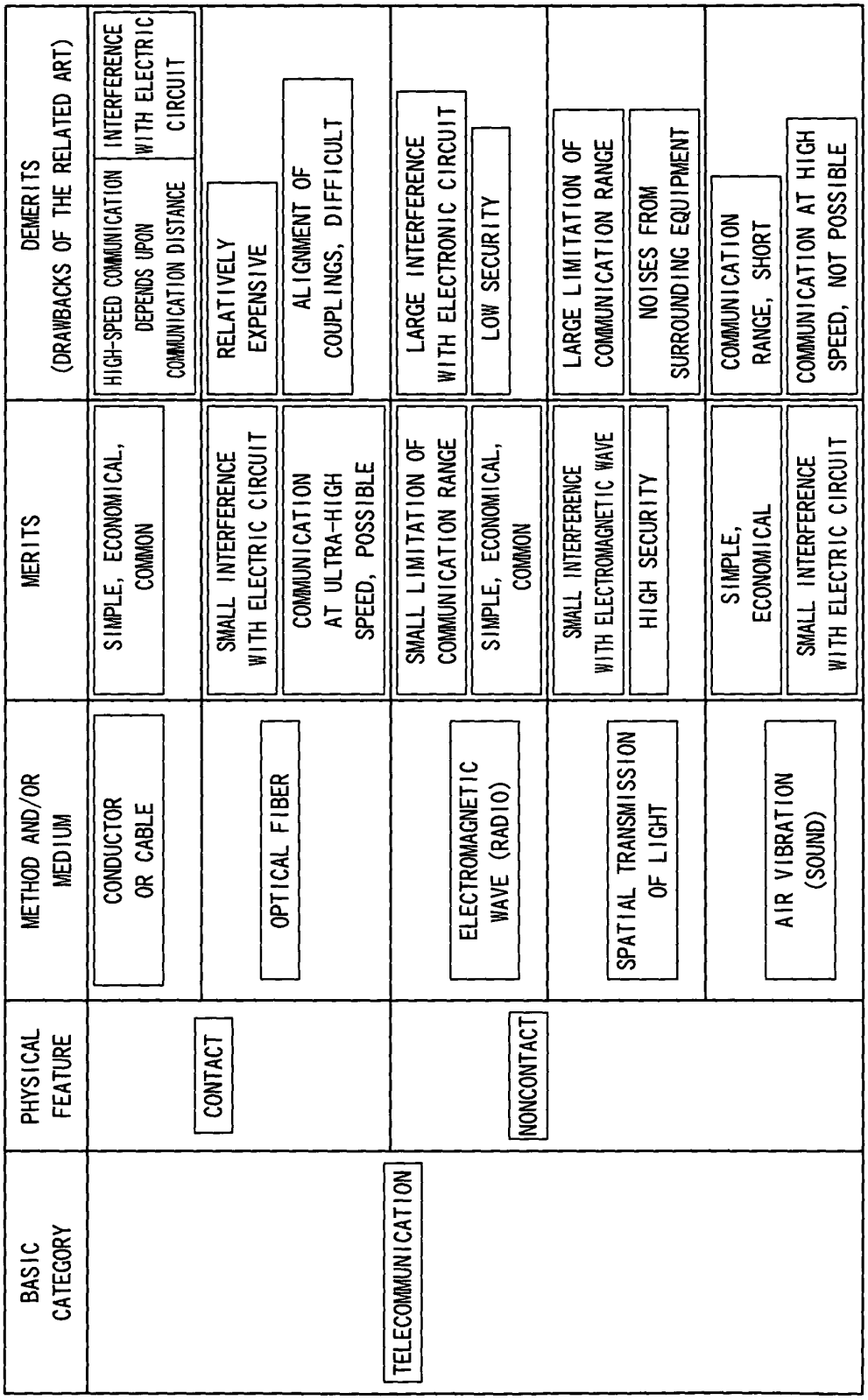

BASIC CATEGORY	PHYSICAL FEATURE	METHOD AND/OR MEDIUM	MERITS	DEMERITS (DRAWBACKS OF THE RELATED ART)
TELECOMMUNICATION	CONTACT	CONDUCTOR OR CABLE	SIMPLE, ECONOMICAL, COMMON	HIGH-SPEED COMMUNICATION DEPENDS UPON COMMUNICATION DISTANCE; INTERFERENCE WITH ELECTRIC CIRCUIT
		OPTICAL FIBER	SMALL INTERFERENCE WITH ELECTRIC CIRCUIT	RELATIVELY EXPENSIVE
			COMMUNICATION AT ULTRA-HIGH SPEED, POSSIBLE	ALIGNMENT OF COUPLINGS, DIFFICULT
	NONCONTACT	ELECTROMAGNETIC WAVE (RADIO)	SMALL LIMITATION OF COMMUNICATION RANGE	LARGE INTERFERENCE WITH ELECTRONIC CIRCUIT
			SIMPLE, ECONOMICAL, COMMON	LOW SECURITY
		SPATIAL TRANSMISSION OF LIGHT	SMALL INTERFERENCE WITH ELECTROMAGNETIC WAVE	LARGE LIMITATION OF COMMUNICATION RANGE
			HIGH SECURITY	NOISES FROM SURROUNDING EQUIPMENT
		AIR VIBRATION (SOUND)	SIMPLE, ECONOMICAL	COMMUNICATION RANGE, SHORT
			SMALL INTERFERENCE WITH ELECTRIC CIRCUIT	COMMUNICATION AT HIGH SPEED, NOT POSSIBLE

FIG.2(Prior Art)

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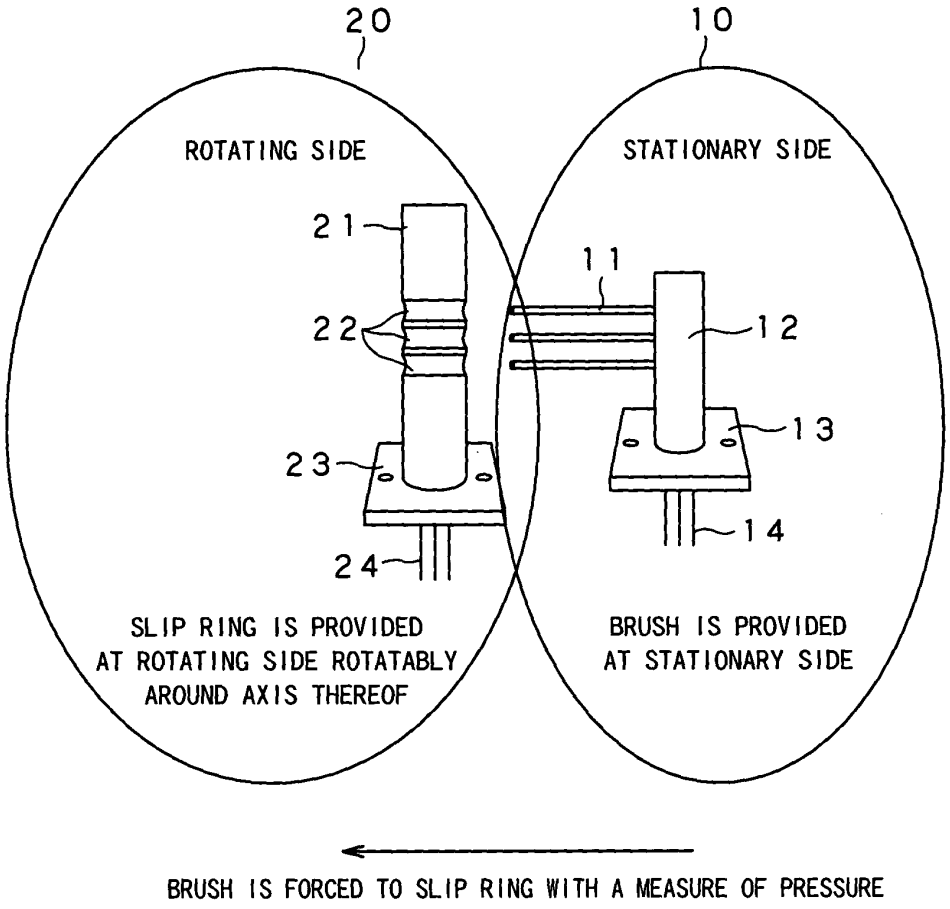

FIG.3(Prior Art)

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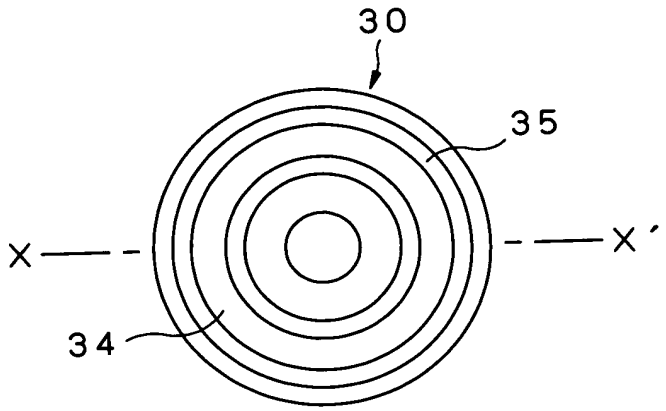

FIG.4A(Prior Art)

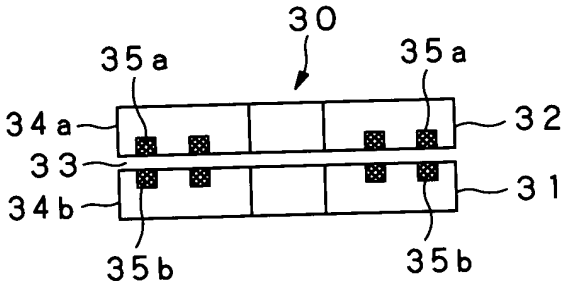

FIG.4B(Prior Art)

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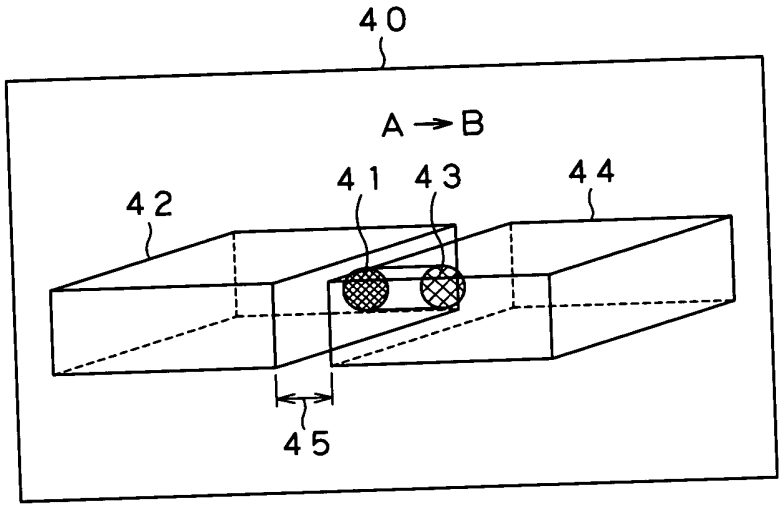

FIG.5

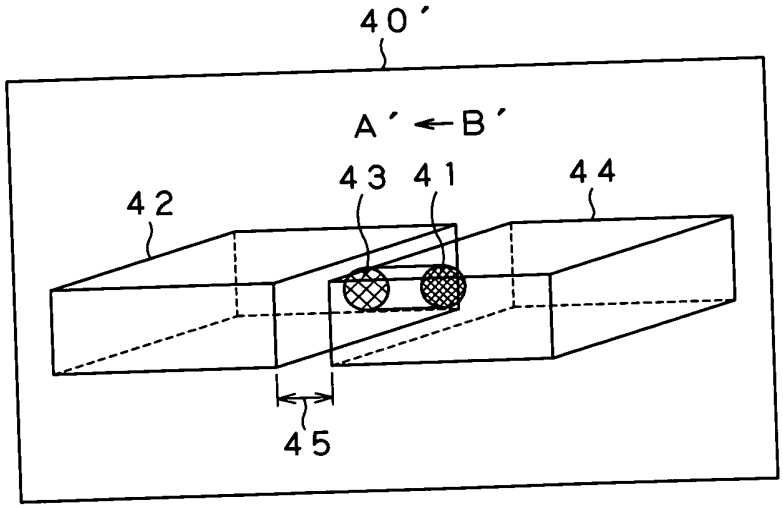

FIG.6

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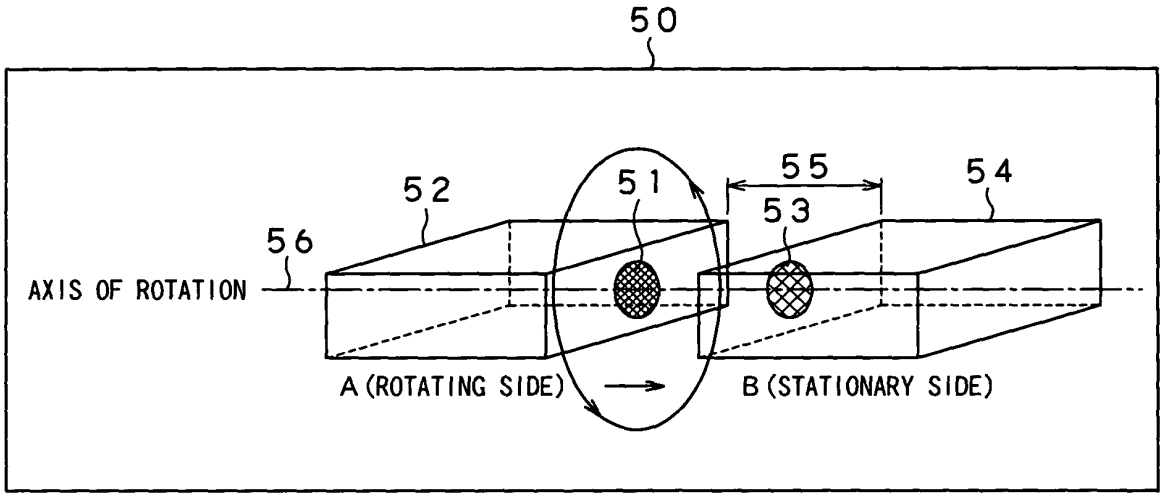

FIG.7

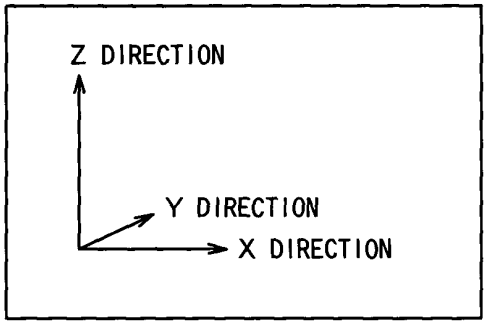

FIG.8

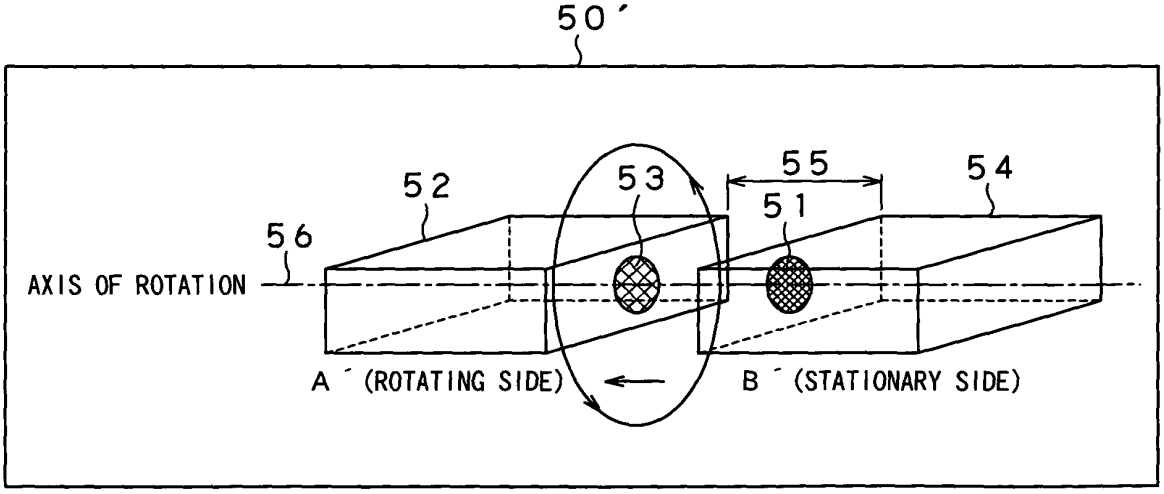

FIG.9

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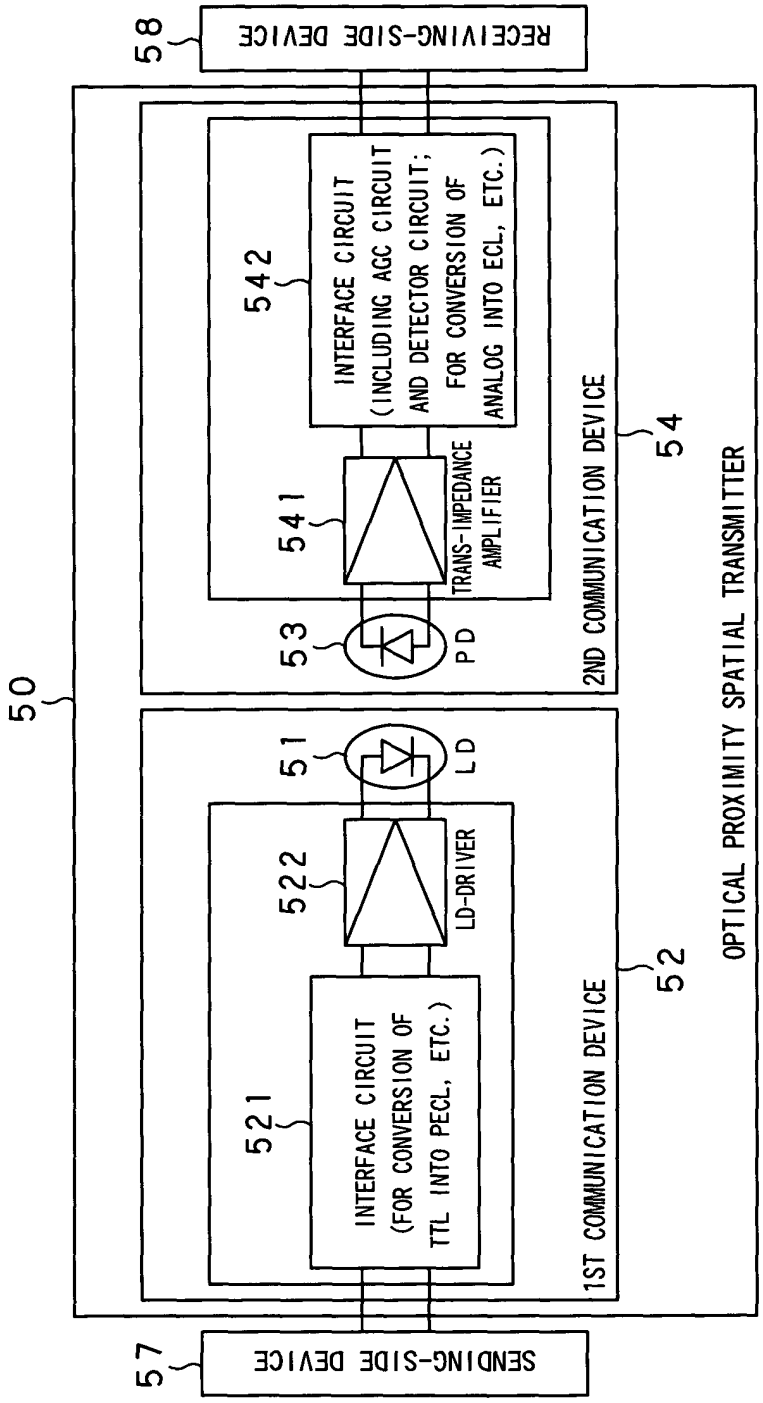

FIG.10

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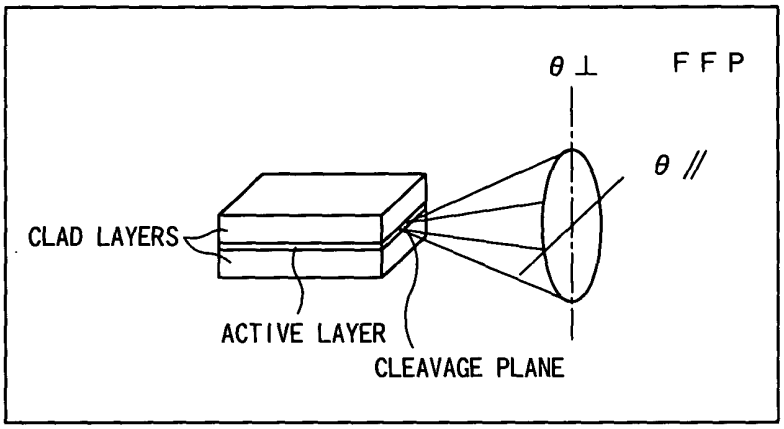
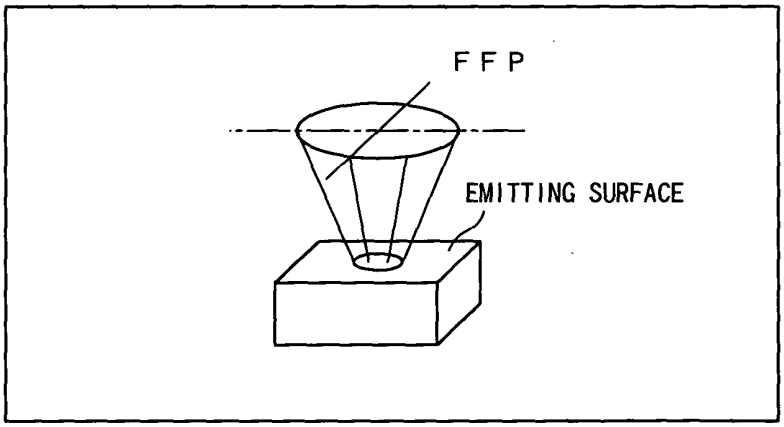


FFP : ELLIPTIC (GENERALLY, θ //≒10°, θ ⊥≒30°)

FIG.11A



FFP : CIRCULAR (GENERALLY, θ ≒10°)

FIG.11B

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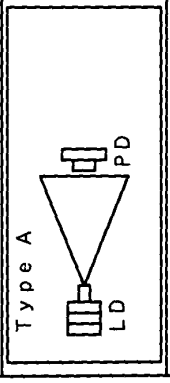
	EFFICIENCY	SPATIAL TRANSMISSION DISTANCE	X-AXIAL PHOTODETECTION WIDTH	Y- AND Z-AXIAL PHOTODETECTION WIDTH	APTITUDE	ECONOMICAL EFFICIENCY
 TYPE A: LD AND PD ARE DIRECTLY OPPOSITE TO EACH OTHER (IMPRACTICAL)	–	–	–	–	×	–
TYPE B: LD WITH LENS IS OPPOSITE TO PD	△	○	○	△	FOR SYSTEM IN WHICH OSCILLATION IN DIRECTION OF OFF-AXIS DEVIATION IS SMALL	○
TYPE C: LD IS OPPOSITE TO PD WITH LENS	△	△	△	○	FOR SYSTEM IN WHICH OSCILLATION IN DIRECTION OF OFF-AXIS DEVIATION IS LARGE	○

FIG.12

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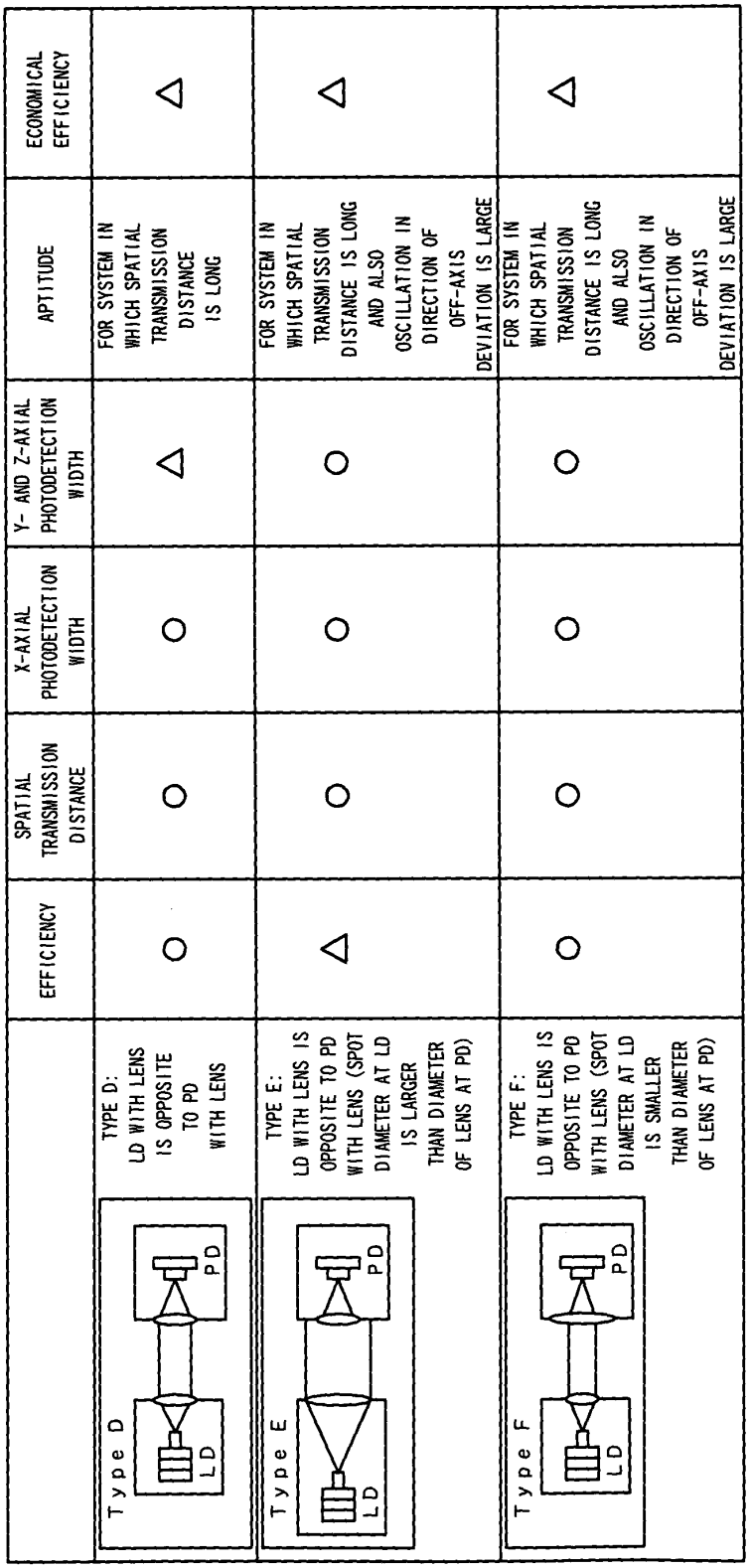

	EFFICIENCY	SPATIAL TRANSMISSION DISTANCE	X-AXIAL PHOTODETECTION WIDTH	Y- AND Z-AXIAL PHOTODETECTION WIDTH	APTITUDE	ECONOMICAL EFFICIENCY
Type D LD PD TYPE D: LD WITH LENS IS OPPOSITE TO PD WITH LENS	○	○	○	△	FOR SYSTEM IN WHICH SPATIAL TRANSMISSION DISTANCE IS LONG	△
Type E LD PD TYPE E: LD WITH LENS IS OPPOSITE TO PD WITH LENS (SPOT DIAMETER AT LD IS LARGER THAN DIAMETER OF LENS AT PD)	△	○	○	○	FOR SYSTEM IN WHICH SPATIAL TRANSMISSION DISTANCE IS LONG AND ALSO OSCILLATION IN DIRECTION OF OFF-AXIS DEVIATION IS LARGE	△
Type F LD PD TYPE F: LD WITH LENS IS OPPOSITE TO PD WITH LENS (SPOT DIAMETER AT LD IS SMALLER THAN DIAMETER OF LENS AT PD)	○	○	○	○	FOR SYSTEM IN WHICH SPATIAL TRANSMISSION DISTANCE IS LONG AND ALSO OSCILLATION IN DIRECTION OF OFF-AXIS DEVIATION IS LARGE	△

FIG.13

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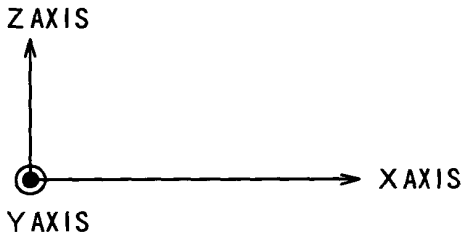


FIG.14

FIG.15A

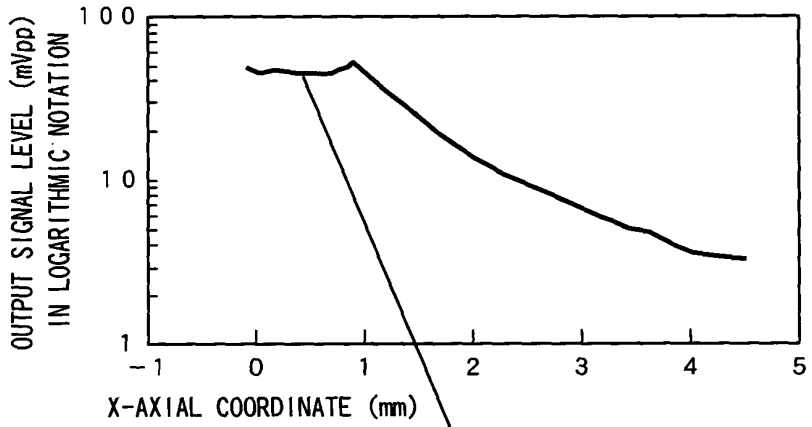
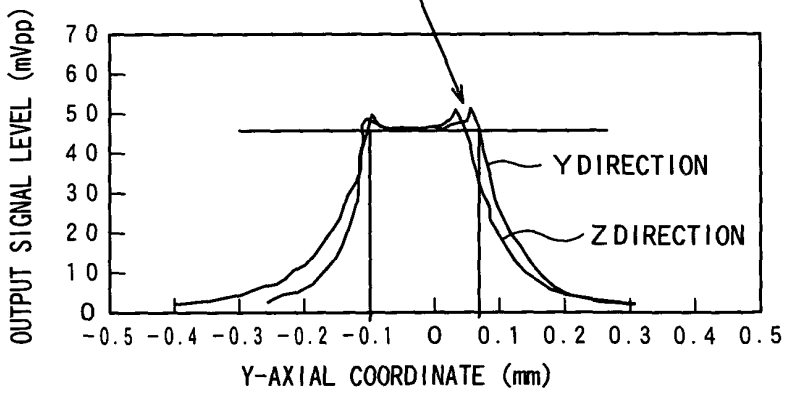


FIG.15B



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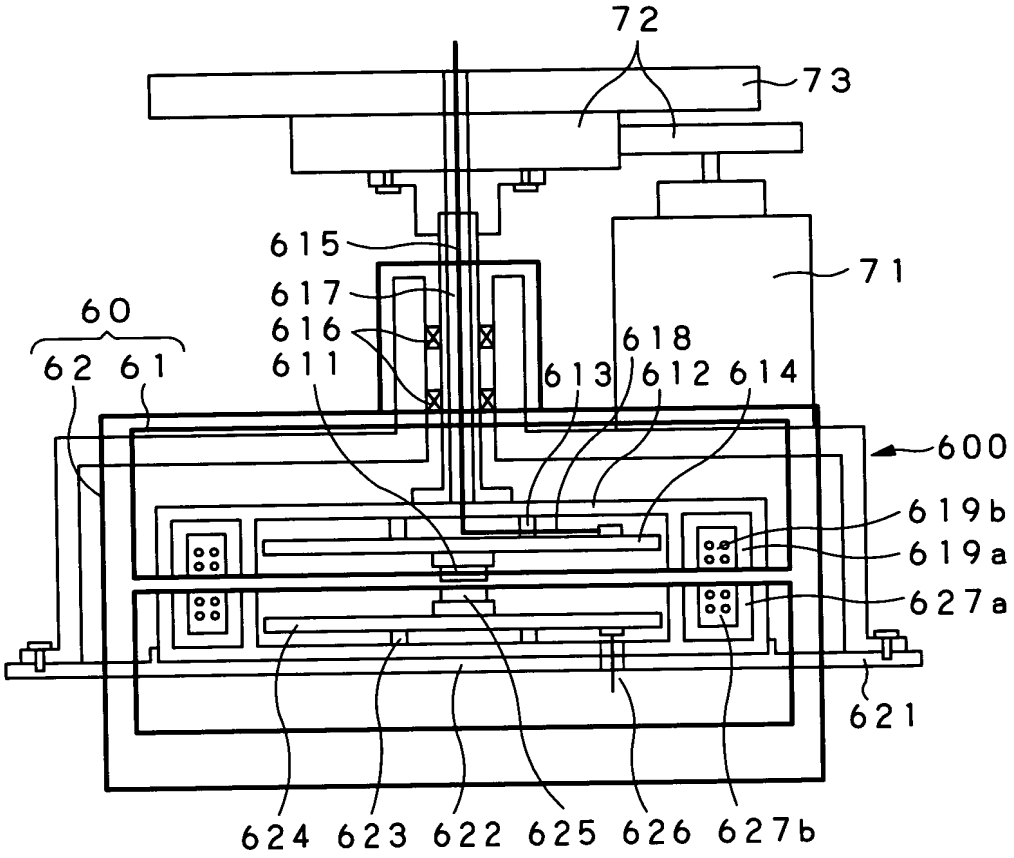

FIG. 16

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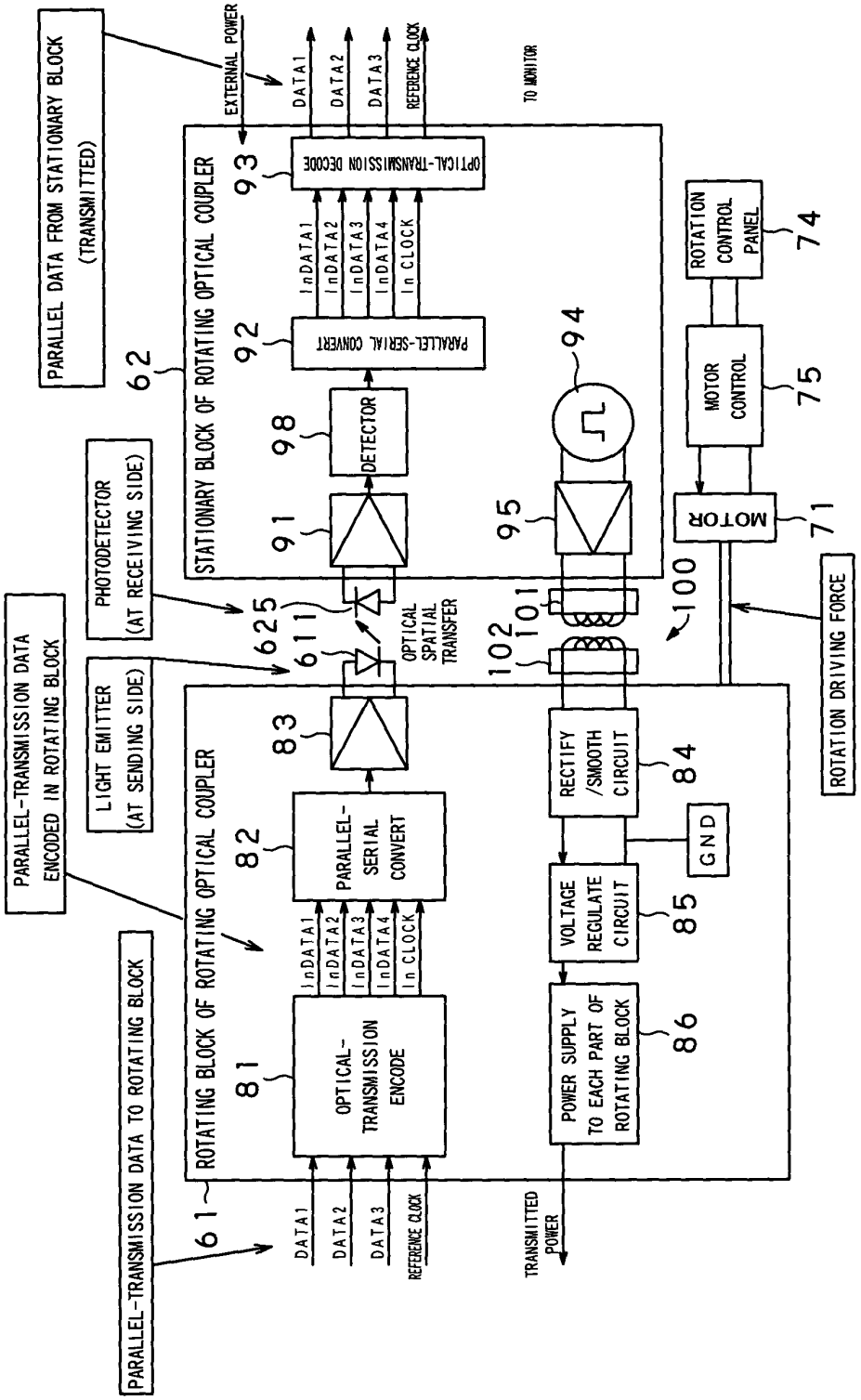

FIG. 17

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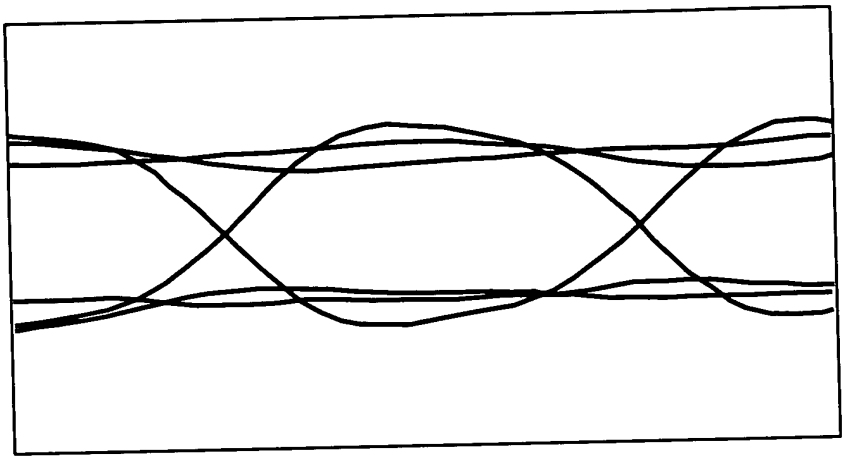

FIG.18

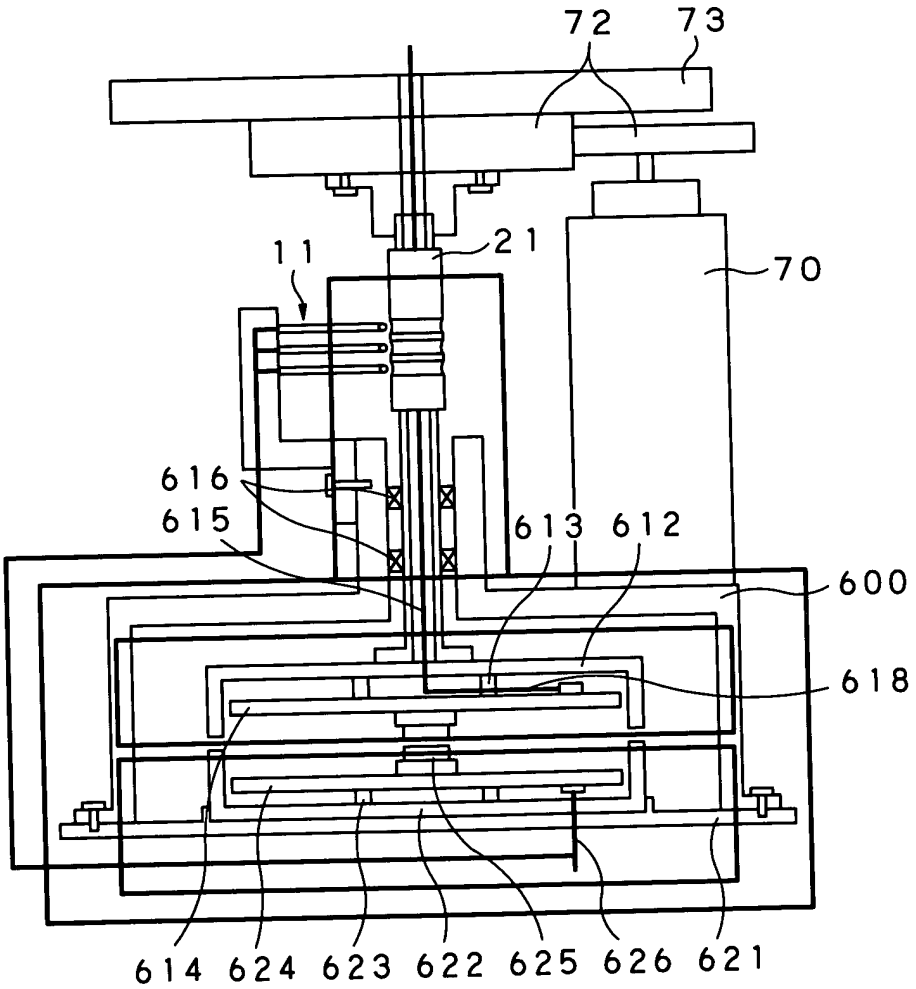

FIG.19

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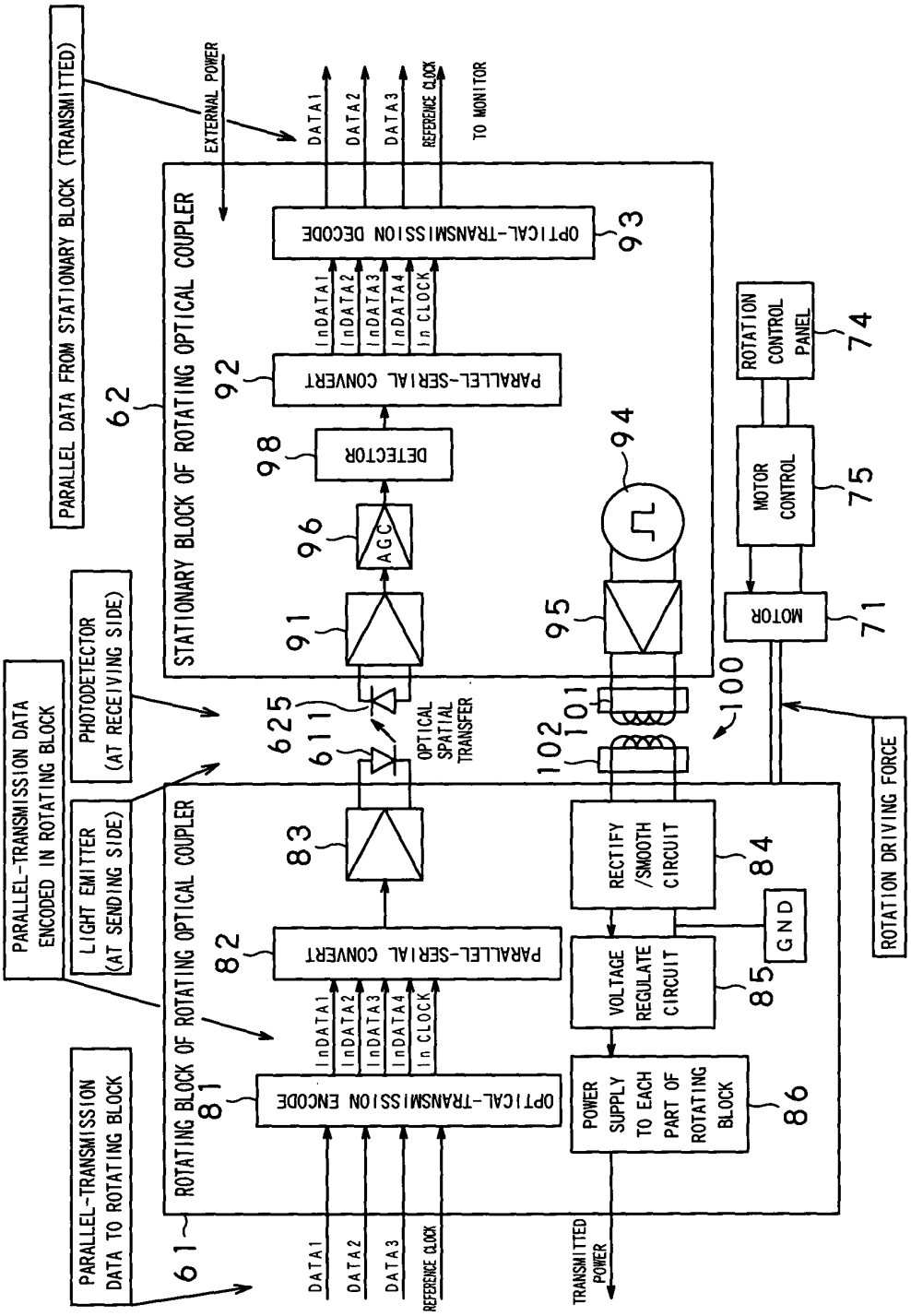

FIG.20

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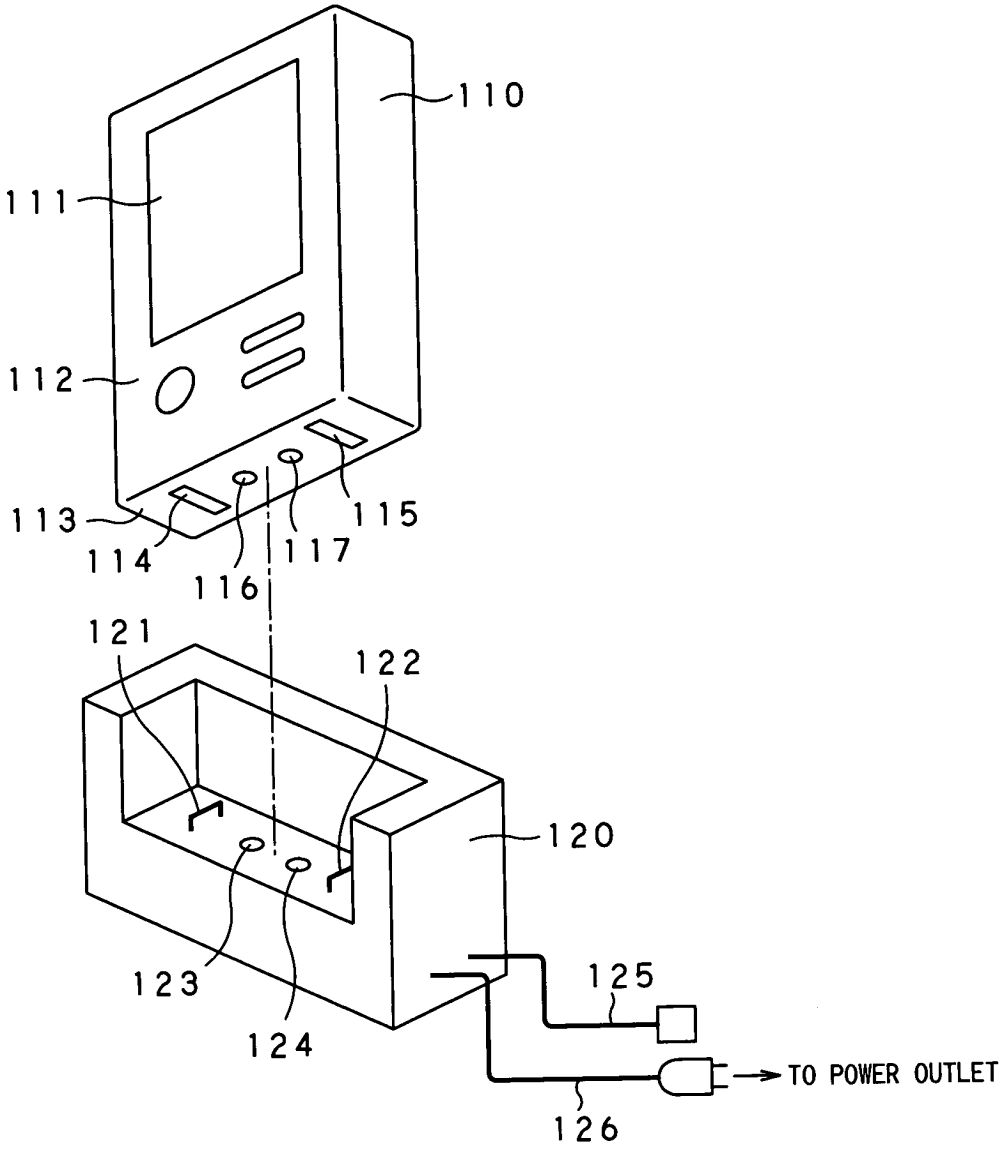

FIG.21

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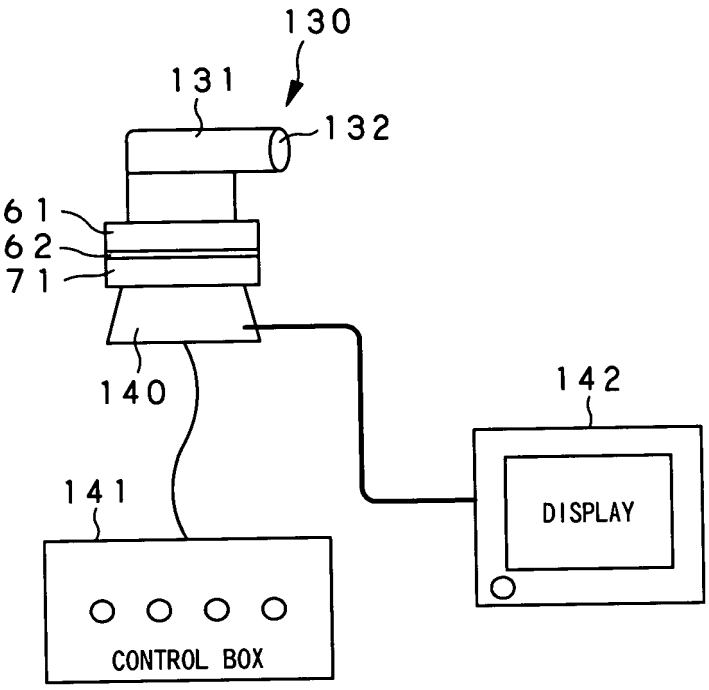

FIG.22

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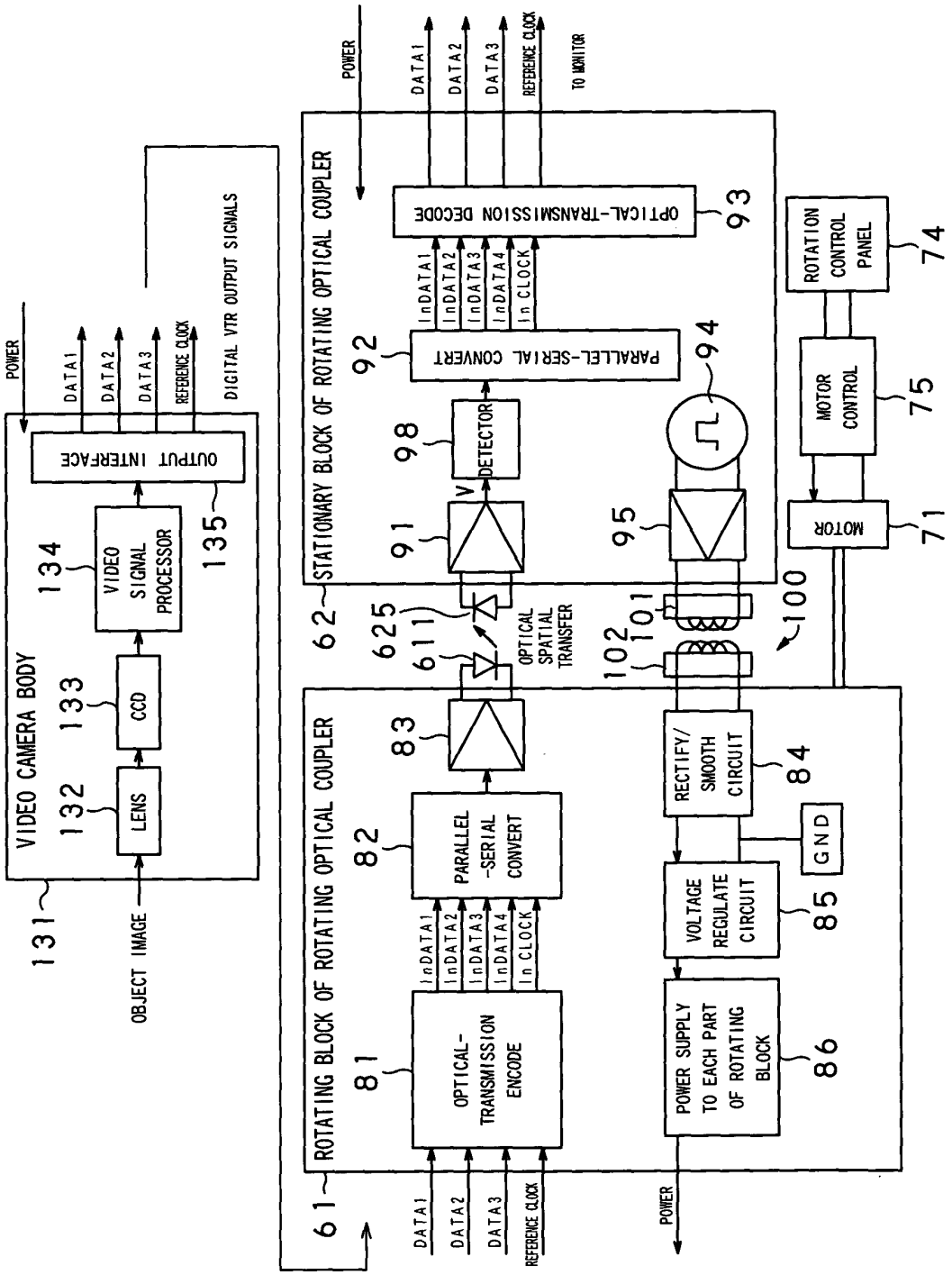

FIG.23

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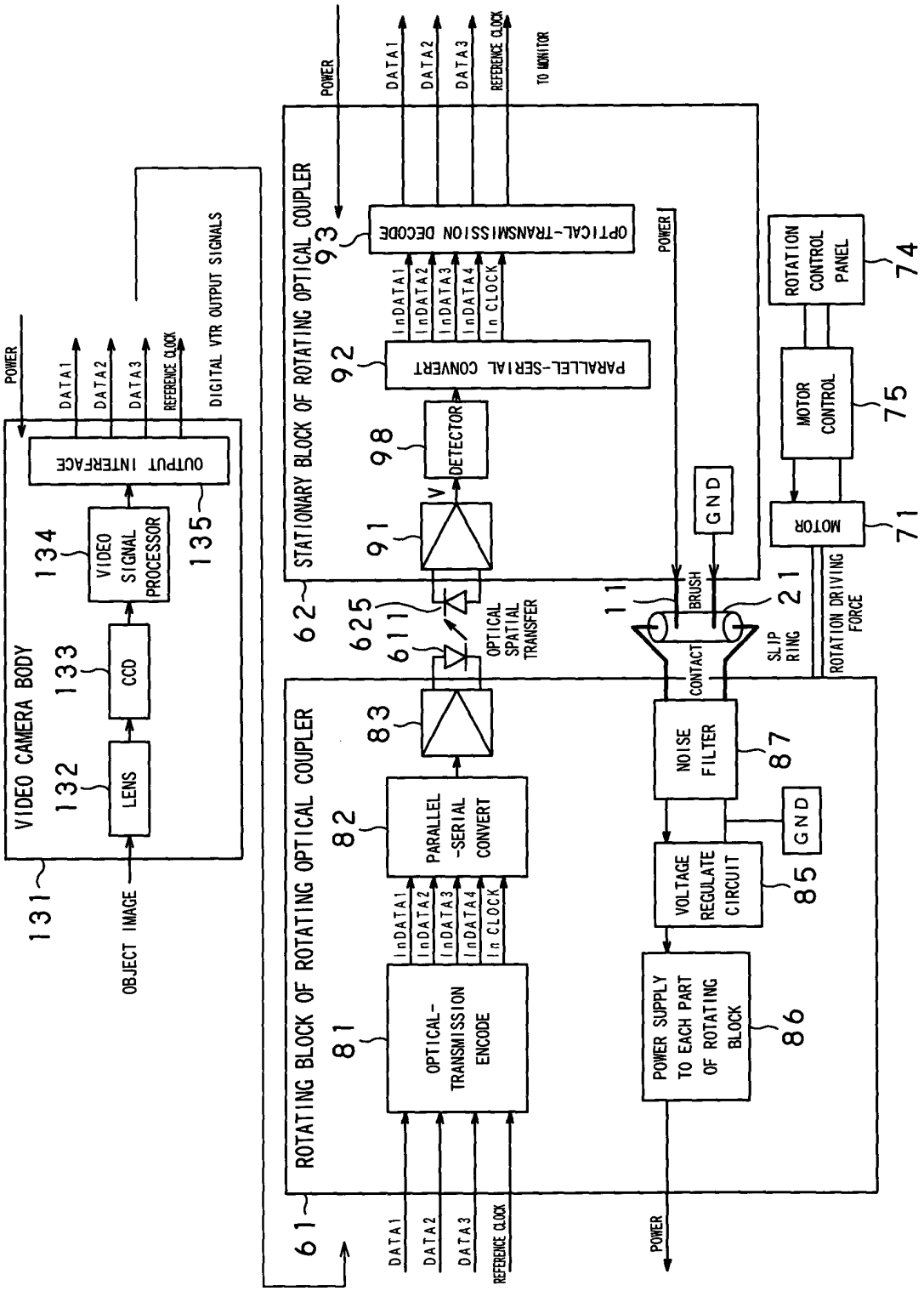

FIG.24

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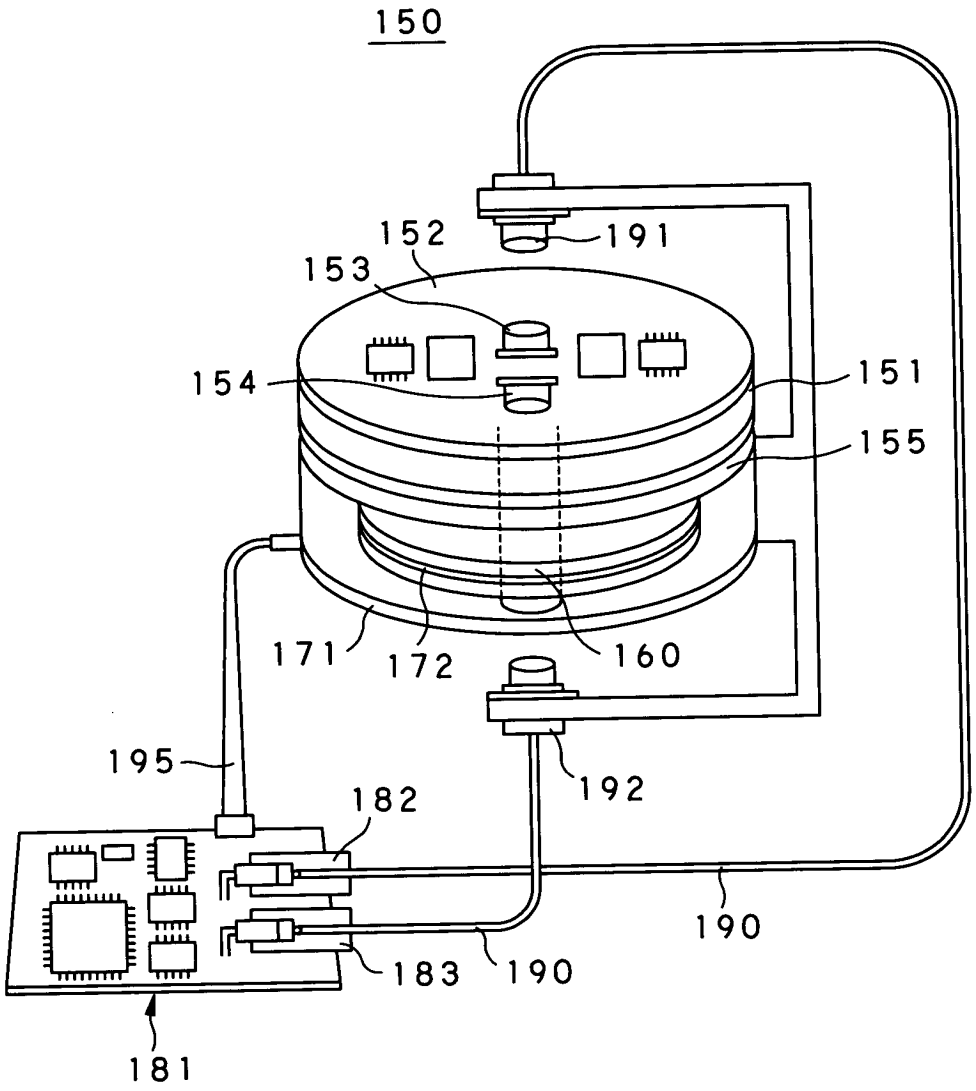

FIG.25

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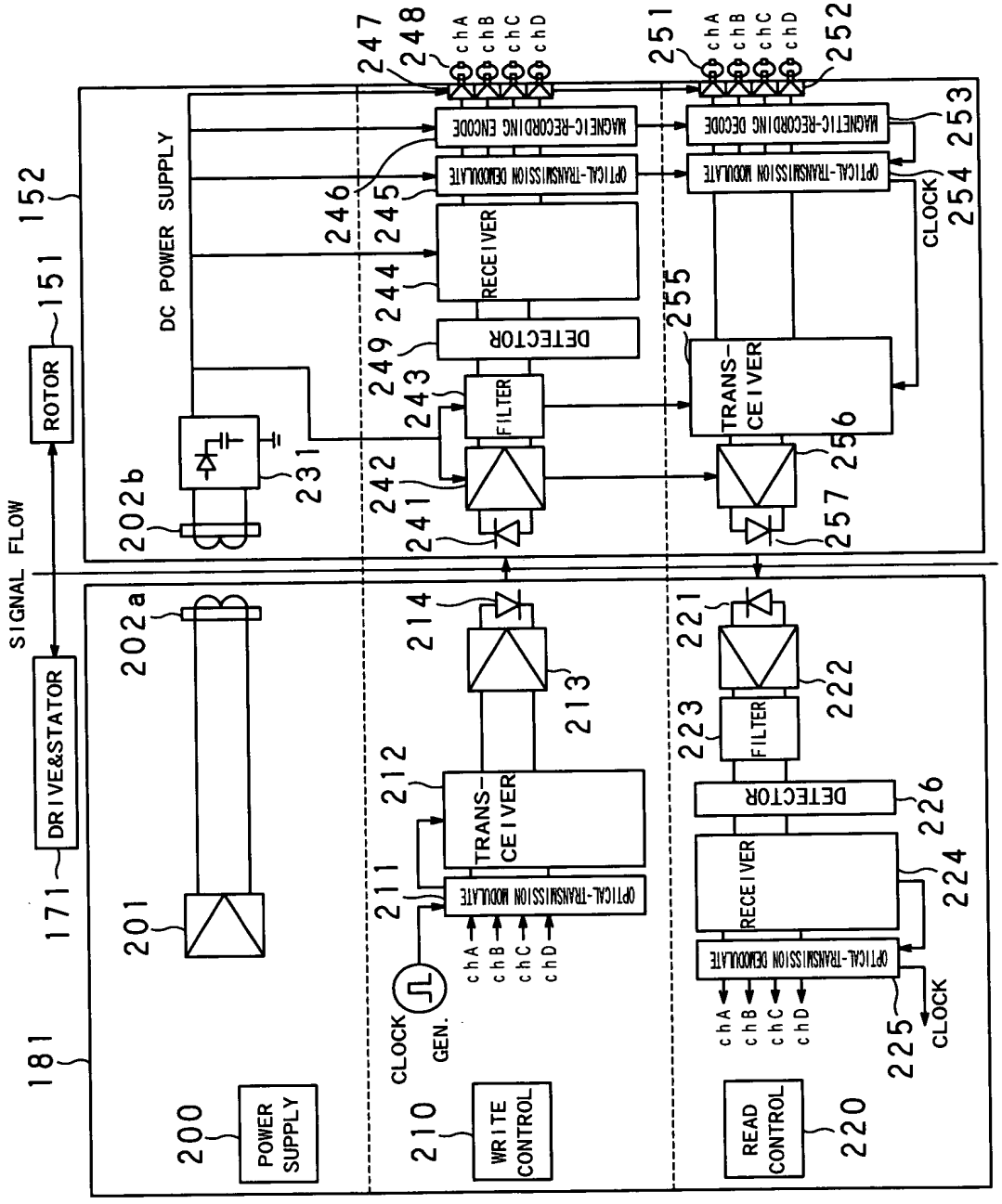

FIG.26

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FIG.27A

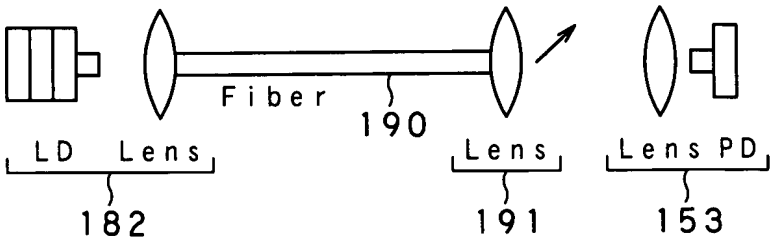


FIG.27B

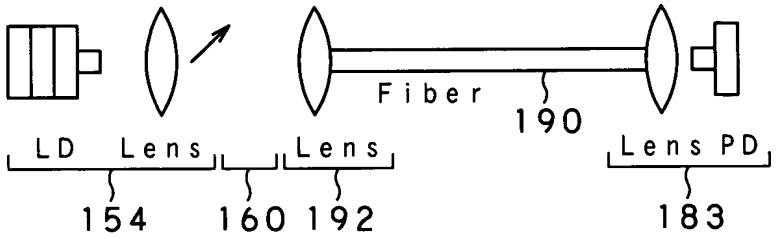


FIG.28A

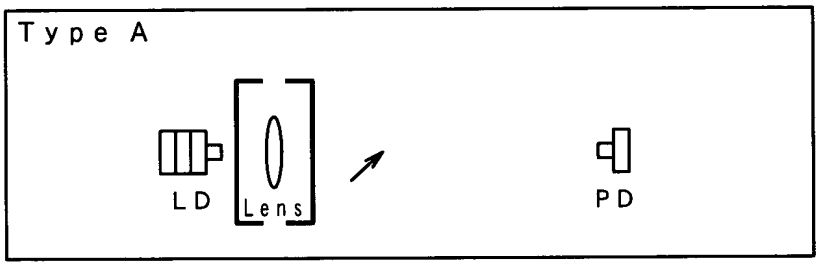


FIG.28B

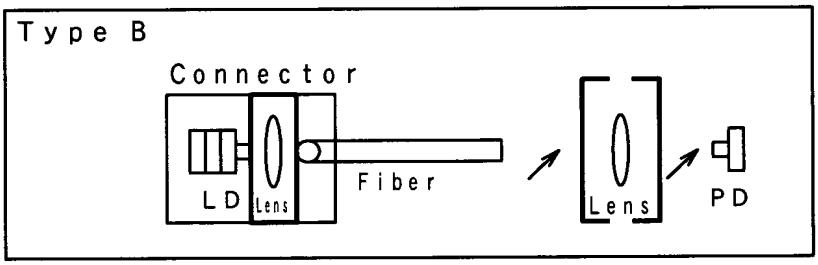


FIG.28C

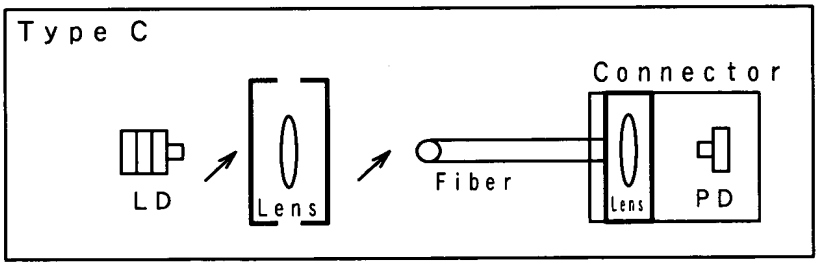
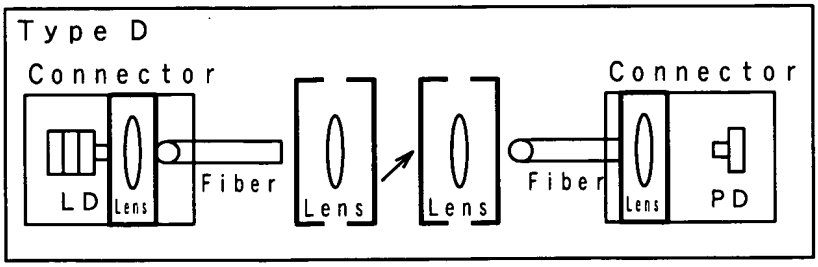


FIG.28D



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